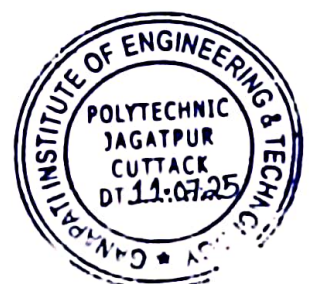


LESSON PLAN OF 3RD SEMESTER(2025-26) CIVIL ENGINEERING

Discipline :- CIVIL ENGG.	Semester:-3 RD	Name of the Teaching Faculty PRIYABRATA TRIPATHY (Lecturer)
Subject:- TRANSPORTATION ENGINEERING (CEPC203)	No of Days/per Week Class Allotted :-03	Semester From:-14/07/2025 To:- 15/11/2025 No of Weeks:- 18
Week	Class Day	Theory/ Practical Topics
1 st	1 st	Overview of Highway Engineering • Role of transportation in the development of nation, Scope and Importance of roads in India and its' Characteristics.
	2 nd	• Different modes of transportation – land way, waterway, airway.
	3 rd	Merits and demerits of roadway and railway;
2 nd	1 st	• General classification of roads.
	2 nd	• Selection and factors affecting road alignment
	3 rd	Geometric Design of Highway • Camber: Definition, purpose, types as per IRC– recommendations
3 rd	1 st	Kerbs: Road margin, road formation, right of way.
	2 nd	Design speed and various factors affecting design speed as per IRC – recommendations.
	3 rd	Gradient: Definition, types as per IRC – Recommendations
4 th	1 st	Sight distance (SSD): Definition, types IRC – recommendations
	2 nd	simple numerical.
	3 rd	Curves: Necessity, types
5 th	1 st	Horizontal, vertical curves
	2 nd	Extra widening of roads
	3 rd	numerical examples
6 th	1 st	Super elevation: Definition, formula for calculating minimum and maximum Super elevation
	2 nd	method of providing super-elevation
	3 rd	Standards cross-sections of national highway in embankment and cutting
7 th	1 st	Construction of Road Pavements • Types of road materials and their Tests
	2 nd	– Test on aggregates-Flakiness and Elongation Index tests,
	3 rd	Angularity Number test, test on Bitumen- penetration, Ductility
8 th	1 st	Flash and Fire point test and Softening point test.
	2 nd	Pavement – Definition, Types, Structural Components of pavement and their functions
	3 rd	• Construction of WBM road. Merits and demerits of WBM & WMM road.
9 th	1 st	Construction of Flexible pavement / Bituminous Road, Types of Bitumen and its proper- ties
	2 nd	Emulsion, Cutback, Tar, Terms used in BR-prime coat
	3 rd	tack coat, seal coat, Merits and Demerits of BR.



10 th	1 st	• Cement concrete road -methods of construction
	2 nd	Alternate and Continuous Bay Method
	3 rd	Construction joints, filler and sealers, merits and demerits of concrete roads.
11 th	1 st	Types of joints.
	2 nd	Basics of Railway Engineering • Classification of Indian Railways, zones of Indian Railways
	3 rd	Permanent way: Ideal requirement, Components; Rail Gauges, types, factors affecting selection of a gauge.
12 th	1 st	Rail, Rail Joints - requirements, types.
	2 nd	• Creep of rail: causes and prevention.
	3 rd	
13 th	1 st	• Sleepers - functions and Requirement, types - concrete sleepers and their density
	2 nd	• Ballast - function and types, suitability.
	3 rd	Rail fixtures and fastenings – fish plate, spikes, bolts, keys, bearing plates
14 th	1 st	Track geometrics, Construction and Maintenance
	2 nd	• Alignment- Factors governing rail alignment.
	3 rd	• Track Cross sections – standard cross section of single and double line in cutting and embankment
15 th	1 st	Important terms-permanent land, formation width, side drains,
	2 nd	• Railway Track Geometrics: Gradient, curves- types and factors affecting
	3 rd	grade compensation, super elevation, limits of Super elevation on curves
16 th	1 st	cant deficiency, negative cant, con- ing of wheel, tilting of rail.
	2 nd	• Branching of Tracks, Points and crossings
	3 rd	Turn out- types, components, functions and inspection
17 th	1 st	Track junctions: crossovers, scissor cross over, diamond crossing, track triangle.
	2 nd	• Station -Purpose, requirement of railway station, important technical terms
	3 rd	types of rail- way station, factors affecting site selection for railway station. Function & drawbacks of marshalling yards.
18 th	1 st	• Track Maintenance- Necessity, Classification,
	2 nd	Tools required for track maintenance with their functions, Organisation of track maintenance
	3 rd	Duties of permanent way inspector, gangmate and key man.

[Signature]
11.07.25
LECTURER

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11/7/25
PRINCIPAL
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